

COTININE EXCRETION AND DAILY CIGARETTE SMOKING IN HABITUATED SMOKERS

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PURPOSE: COTININE IN THE BIOLOGICAL FLUIDS IS CONSIDERED TO BE A BETTER INDEX OF SMOKING STATUS THAN NICOTINE SINCE THE HALF-LIFE OF COTININE IN BLOOD IS LONGER THAN THAT OF NICOTINE, AND, THEREFORE, COTININE IS FOUND IN THE BIOLOGICAL FLUIDS IN LARGER AMOUNTS AND FOR LONGER PERIODS THAN NICOTINE. FURTHERMORE, URINARY EXCRETION OF COTININE HAS BEEN REPORTED TO BE LESS DEPENDENT ON URINE PH THAN NICOTINE. THIS STUDY INVESTIGATES THE ACCURACY OF URINARY COTININE AS A MEASURE OF CIGARETTE SMOKING, AND THE EFFECTS ON COTININE EXCRETION OF URINE VOLUME AND PH. THE SENSITIVITY OF RADIOIMMUNOASSAY FOR DETECTION OF URINARY COTININE IS ALSO EVALUATED.

METHODS: URINARY COTININE WAS MEASURED BY RADIOIMMUNOASSAY IN 11 MALE "HABITUATED" SMOKERS (20-39 YR OF AGE) EVERY 15 MIN FOR 2 1/2 HR AFTER SMOKING THREE CIGARETTES AND WAS CORRELATED WITH URINE VOLUME AND PH. COTININE EXCRETION WAS ALSO DETERMINED IN 51 HOSPITAL PATIENTS, 21 NONSMOKERS AND 30 SMOKERS WHO WERE DIVIDED INTO THREE CATEGORIES BASED ON DAILY CIGARETTE SMOKING AMOUNT (10 OR LESS, 11-20, AND MORE THAN 21). URINARY COTININE WAS ALSO MEASURED FOR SEVERAL SUCCESSIVE DAYS IN SEVEN SMOKERS AND WAS CORRELATED WITH DAILY SMOKING AMOUNT.

FINDINGS: URINARY EXCRETION OF COTININE WAS HIGH IN HABITUATED SMOKERS BEFORE SMOKING AND INCREASED SLIGHTLY AFTER SMOKING THREE CIGARETTES. THERE WAS NO CORRELATION BETWEEN URINARY COTININE EXCRETION AND PH OR URINE FLOW AFTER SMOKING. DAILY URINARY EXCRETION OF COTININE IN SMOKERS TENDED TO RELATE ROUGHLY TO DAILY SMOKING AMOUNT, ALTHOUGH EXCRETION VARIED EVEN

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AMONG THE SMOKERS WHO CONSUMED APPROXIMATELY EQUAL NUMBERS OF CIGARETTES. THERE WAS NO URINARY EXCRETION OF COTININE IN NONSMOKERS. SUCCESSIVE DETERMINATIONS OF THE DAILY COTININE EXCRETION REVEALED THAT THE EXCRETION CORRELATED WELL WITH DAILY SMOKING AMOUNT.

THE MINIMUM DETECTABLE AMOUNT OF COTININE IN THE URINE WAS 1 NG. THE INTRA-ASSAY AND INTER-ASSAY COEFFICIENTS OF VARIATION WERE 17 AND 28%, RESPECTIVELY.

DISCUSSION: "[U]RINE COTININE IS A GOOD AND RELIABLE INDEX OF CHRONIC SMOKING STATUS, AND [IS] PREFERRED TO NICOTINE, SINCE URINE EXCRETION OF COTININE IS LONGER IN DURATION, LARGER IN AMOUNT, AND EFFECTED LESS BY PH AND FLOW OF THE URINE THAN IS THAT OF NICOTINE."

/POC/

(SEE ALSO DOCUMENT NO. 59929.)

KOBE U SCH MED, KOBE, JAPAN/
KOBE U SCH MED, KOBE, JAPAN;
JAP TOB SALT PUBL CORP HOSP, KYOTO, JAPAN

METABOLIC STUDY, METHODOLOGY STUDY, SMOKING TEST, HUNDRED, CIGARETTE SMOKING, NONSMOKERS, METHODOLOGY VALIDITY, METHODOLOGY ANALYSIS, URINARY COTININE SMOKING ASSOC, SMOKING HABITS VALIDITY, URINARY COTININE SMOKING AMOUNT ASSOC, URINARY EXCRETION, COTININE EXCRETION, COTININE METABOLISM/ DATA COMPARABILITY CONCESSION, NICOTINE METABOLITES, BLOOD COTININE, PH FACTORS, BIOLOGICAL HALF LIFE, SMOKING HABITUATION, NICOTINE ABSORPTION, NICOTINE EXCRETION, NICOTINE DETOXIFICATION, INDIVIDUAL VARIABILITY, STUDY DESIGN, PUFF FREQUENCY, SMOKING METHODS, CIGARETTE BUTT LENGTH, SMOKING INHALATION DEGREE, URINE VOLUME, TIME FACTORS,

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NICOTINE METABOLISM URINARY PH CAUSATION 1, STRUCTURE ACTIVITY
RELATIONSHIP, SMOKING HABITS, SMOKING INHALATION HABITS,
BLOOD NICOTINE SMOKING CAUSATION 1, PIPE SMOKING/
RADIOIMMUNOASSAY, CHEMICAL STRUCTURE, PYRIDINE RING, PYRROLIDINE
RING, STATISTICAL ANALYSIS, STATISTICAL SIGNIFICANCE, CIGAR
SMOKING, RADIOISOTOPE LABELING, SMOKING ABSTINENCE, CIGARETTE
BRANDS, T TEST, NORNICOTINE, MYOSMINE, OXYNICOTINE, CORRELATION
COEFFICIENTS, URINALYSIS, ADENOSINE MONOPHOSPHATE, IMMUNOLOGICAL
TECHNIQUES, IMMUNOLOGICAL CROSS REACTION, SMOKERS CLASSIFICATION,
AMNIOTIC FLUID, CIGARETTE NICOTINE CONTENT, NICOTINE OXIDE/
ENGLISH LANGUAGE, KOBE RESIDENCE, JAPAN RESIDENCE, KYOTO
RESIDENCE, GRANTOR JAPAN TOBACCO SALT PUBLIC CORP, HOSPITAL
PATIENTS, YOUNG ADULTS

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